IN THE CLAIMS (as amended During International Preliminary Examination):

Please amend the claims as follows:

1. (Currently Amended) A method for ~~the production of~~ producing a serial connection of solar cells having integrated semiconductor elements, ~~characterized by the following features~~ comprising the steps of:

- ~~incorporation of~~ incorporating one or more conductive elements ~~(20)~~ into an insulating support layer ~~(10) according to~~ in a pattern, whereby the conductive elements ~~(20)~~ protrude from the surface of the support layer on at least one side of the support layer, and the pattern ~~calls for~~ defines at least one separation line ~~(21)~~ having a width B and ~~consisting of~~ comprising at least one ~~or more~~ conductive elements ~~(20)~~;

- ~~incorporation of several~~ incorporating a plurality of spherical or grain-shaped semiconductor elements ~~(30)~~ into the insulating support layer ~~(10)~~ according to a pattern, whereby the semiconductor elements ~~(30) consist of~~ comprise substrate cores that are coated at least with one conductive back contact layer made of molybdenum and with one semiconductor layer made of a I-III-VI compound semiconductor arranged above it, the semiconductor elements ~~(30)~~ protrude from the surface of the support layer on at least one side of the support layer, and the pattern provides that the areas next to a separation line ~~(21)~~ or between several separation lines ~~(21) consisting of~~ comprising conductive elements ~~(20)~~ are fitted with semiconductor elements ~~(30)~~;

- ~~removal of~~ removing parts of the semiconductor elements ~~(30)~~ on one side of the support layer ~~(10)~~ until the back contact layer of the semiconductor elements ~~(30)~~ is exposed;

- ~~application of~~ applying a conductive back contact layer (50) onto the side of the support layer ~~(10)~~ on which parts of the semiconductor elements ~~(30)~~ have been removed;

~~application of~~ applying a conductive front contact layer ~~(40)~~ onto the side of the support layer ~~(10)~~ on which no semiconductor elements have been removed, whereby before and/or after ~~the deposition of~~ applying the front contact layer ~~(40)~~ and/or of the back contact layer (50), depositing a buffer layer made of CdS and/or a layer made of intrinsic zinc oxide ~~are deposited~~, or a buffer layer made of CdS and/or a layer made of intrinsic zinc oxide had already been deposited onto the spherical or grain-shaped semiconductor elements ~~(30)~~ employed;

[[•]] making ~~of~~ two separation cuts ~~(60; 61)~~ along a separation line ~~(21) consisting of~~ comprising conductive elements ~~(20), whereby~~, including making a first separation cut ~~(60) is made~~ in the front contact layer ~~(40)~~ and making a second separation cut ~~(61) is made~~ in the back contact layer, the separation cuts ~~are~~ being on different sides of the ~~appertaining~~ separation line ~~(21)~~, and the separation cuts ~~(60; 61) penetrate~~ penetrating the back contact layer ~~(50)~~ all the way to the support layer ~~(10)~~.

2. (Currently Amended) The method according to claim 1, ~~characterized in that~~ wherein the spherical or grain-shaped semiconductor elements ~~(30) have~~ comprise a layer made of transparent conductive oxide (TCO).

3. (Currently Amended) The method according to ~~one or both of the preceding claims~~ claim 1 ~~and 2, characterized in that,~~ comprising in addition to removing parts of the semiconductor elements ~~(30)~~, removing parts of the conductive elements ~~(20) are also removed~~.

4. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, comprising, ~~characterized in that,~~ in addition to ~~the removal of~~ removing parts of the semiconductor elements ~~(30)~~, removing part of the support layer ~~(10) is removed~~.

5. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ comprising applying the conductive elements ~~(20)~~ and/or the semiconductor elements ~~(30) are applied~~ onto the support layer ~~(10)~~ by means of scattering, dusting and/or printing, ~~after which they are incorporated~~ and thereafter incorporating said conductive elements and/or said semiconductor elements into the support layer.

6. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ comprising incorpoirating several conductive elements ~~(20)~~ in the form of spherical or grain-shaped particles, in the form of strips or in the form of a paste ~~are incorporated~~ into the support layer ~~(10)~~.

7. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ comprising arranging the conductive elements ~~(20)~~ and/or the semiconductor elements ~~(30) are arranged~~ into a pattern using an auxiliary means and placing the elements ~~(20; 30) are placed~~ onto and/or into the support layer using the auxiliary means.

8. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the support layer ~~(10)~~ is a matrix with recesses into which the elements ~~(20; 30)~~ are incorporated.

9. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ comprising incorporating the elements ~~(20; 30) are incorporated~~ into the support layer ~~(10)~~ by means of a heating and/or pressing procedure.

10. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein a separation line ~~(21) consisting of~~ comprising conductive elements ~~(20)~~ extends between two edges of the support layer ~~(10)~~ that are opposite from each other.

11. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that the removal of~~ comprising removing the elements ~~(20; 30)~~ and/or ~~of~~ the support layer ~~(10) is done~~ by ~~means of~~ grinding, polishing, etching, thermal energy input and/or by photolithographic processes.

12. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ comprising applying the back contact layer ~~(50)~~ and the front contact layer ~~(40) are deposited~~ by a method selected from the group consisting of PVD methods, CVD methods ~~or~~ and other methods that have been adapted to the type of the layer in question.

13. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ claim 1, comprising making the separation cuts ~~(60; 61) are made~~ using a ~~methods such as~~ method selected from the group consisting of cutting, scoring, etching, thermal energy input or by photolithographic processes.

14. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the width of a separation line ~~(21)~~ is in the order of magnitude of B = 10 µm to 3 mm~~, especially between 10 µm and 500 µm~~.

15. (Currently Amended) The method according to ~~one or more of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the distance between two separation lines ~~(21)~~ is in the order of magnitude of 1 mm to 3 cm~~, especially between 3 mm and 5 mm~~.

16. (Currently Amended) A serial connection of solar cells having integrated semiconductor elements, ~~characterized in that~~ wherein the serial connection ~~has at least the following features~~ comprising:

[[•]] an insulating support layer ~~(10)~~ into which one or more conductive elements ~~(20)~~ are incorporated ~~according to~~ in a pattern, ~~whereby~~ wherein the conductive elements ~~(20)~~ protrude from the surface of the support layer on at least one side of the support layer, and the pattern ~~calls for~~ defines at least one separation line ~~(21)~~ having a width B and ~~consisting of~~ comprising at least one ~~or more~~ conductive ~~elements (20)~~ element;

~~•~~ ~~several~~ a plurality of spherical or grain-shaped semiconductor elements ~~(30)~~ in the insulating support layer ~~(10), whereby~~ wherein the semiconductor elements ~~(30) consist of~~ comprise a substrate core that is coated at least with one conductive back contact layer made of molybdenum and with one semiconductor layer made of a I-III-VI compound semiconductor, and the semiconductor elements ~~(30)~~ protrude from the surface of the support layer on at least one side of the support layer and form a pattern in which the areas next to a separation line ~~(21)~~ or between several separation lines ~~(21)~~ are fitted with semiconductor elements ~~(30)~~;

[[•]] a conductive front contact layer ~~(40)~~ on one side of the support layer ~~(10)~~ on which the elements ~~(20, 30)~~ protrude from the layer;

[[•]] a conductive back contact layer ~~(50)~~ on the side of the support layer that is opposite from the front contact layer ~~(40)~~;

[[•]] a buffer layer made of CdS and/or a layer made of intrinsic zinc oxide, or a buffer layer made of CdS and/or a layer made of intrinsic zinc oxide already on the spherical or grain-shaped semiconductor elements ~~(30)~~ employed;

[[•]] in each case, two separation cuts ~~(60, 61)~~ along a row of conductor elements ~~(20), whereby~~ wherein a first separation cut ~~(60)~~ is made in the front contact layer ~~(40)~~ and a second separation cut ~~(61)~~ is made in the back contact layer, the separation cuts ~~are~~ being on different sides of the ~~appertaining~~ row of conductive elements ~~(20)~~, and the separation cuts ~~(60, 61)~~ penetrate the back contact layer ~~(50)~~ all the way to the support layer ~~(10)~~; and

[[•]] on the side of the support layer ~~(10)~~ on which the back contact layer ~~(50)~~ of the solar cell is arranged, at least one of the semiconductor elements ~~(30)~~ has a surface via which a direct contact is established between the back contact layer ~~(50)~~ of the solar cell and the back contact layer of the semiconductor element ~~(30)~~.

17. (Currently Amended) A serial connection according to claim 16, ~~characterized in that~~ wherein the support layer ~~(10) consists of~~ comprises a thermoplastic material.

18. (Currently Amended) The serial connection according to ~~one or both of claims~~ claim 16 ~~and 17~~, ~~characterized in that~~ wherein the support layer ~~(10) consists of~~ comprises a polymer selected from the group ~~comprising~~ consisting of epoxides, polyurethanes, polyacrylics, polycarbonates, polyesters ~~and/or~~, and polyimides.

19. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 18~~, ~~characterized in that~~ wherein a conductive element ~~(20)~~ is formed by a paste or by a strip.

20. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 19~~, ~~characterized in that~~ wherein a conductive element ~~(20)~~ is formed by a spherical or grain-shaped particle.

21. (Currently Amended) The serial connection according to claim 20, ~~characterized in that~~ wherein a conductive element ~~(20) is made of~~ comprises a conductive material in the form of a solid material, or ~~a conductive element (20) consists of~~ a substrate core that is coated with a conductive material.

22. (Currently Amended) The serial connection according to claim 21, ~~characterized in that~~ wherein a conductive element ~~(20) is made of~~ comprising copper in the form of a solid material or of a substrate core that is coated with copper.

23. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 22~~, ~~characterized in that~~ wherein the semiconductor elements ~~(30) have~~ comprises a layer made of transparent conductive oxide (TCO).

24. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 23~~, ~~characterized in that~~ wherein the separation line ~~(21) consisting of~~ comprises conductive elements ~~(20)~~ is essentially straight and [[it]] extends between two edges of the support layer ~~(10)~~ that are opposite from each other.

25. (Currently Amended) The serial connection according to ~~one or more of claims~~ claim 16 ~~to 24, characterized in that~~ wherein the width of a separation line ~~(21)~~ is in the order of magnitude of B = 10 μm to 3 mm~~, especially between 10 μm and 500 μm~~.

26. (Currently Amended) The serial connection according to ~~one or more of claims~~ claim 16 ~~to 25, characterized in that~~ wherein the distance between two separation lines ~~(21)~~ is in the order of magnitude of 1 mm to 3 cm~~, especially between 3 mm and 5 mm~~.

27. (Currently Amended) The serial connection according to ~~one or more of claims~~ claim 16 ~~to 26, characterized in that~~ wherein the front contact layer ~~(40)~~ is made of comprises a conductive material.

28. (Currently Amended) The serial connection according to claim 27, ~~characterized in that~~ wherein the front contact layer ~~(40) is made of~~ comprises a transparent conductive oxide (TCO).

29. (Currently Amended) The serial connection according to ~~one or more of claims~~ claim 16 ~~to 28, characterized in that~~ wherein the back contact layer ~~(50) is made of~~ comprises a metal, [[of]] a transparent conductive oxide (TCO) or [[of]] a conductive polymer.

30. (Currently Amended) The serial connection according to claim 29, ~~characterized in that~~ wherein the back contact layer ~~(50) consists of~~ comprises a polymer selected from the group ~~comprising the~~ consisting of epoxy resins, polyurethanes ~~and/or~~, and

polyimides having conductive particles [[of a]] selected from the group ~~comprising~~ consisting of carbon, indium, nickel, silver, molybdenum, iron, nickel chromium, aluminum ~~and/or the~~ and corresponding alloys or oxides.

31. (Currently Amended) The serial connection according to claim 30, ~~characterized in that~~ wherein the back contact layer ~~(50) consists of~~ comprises an intrinsic conductive polymer.

32. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 31~~, ~~characterized in that~~ wherein the separation cuts ~~(60; 61)~~ are filled up with an insulating material.

33. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 32~~, ~~characterized in that~~ wherein the serial connection is strip-like.

34. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 33~~, ~~characterized in that~~ wherein the width of the serial connection is in the order of magnitude of 5 cm to 30 cm~~, especially approximately 10 cm~~.

35. (Currently Amended) The serial connection according to ~~one or more of~~ ~~claims~~ claim 16 ~~to 34~~, ~~characterized in that~~ wherein the serial connection is joined to another serial connection in such a way that the back contact layer ~~(50)~~ is in contact with a front contact layer of the other serial connection.

36. (Currently Amended) The serial connection according to claim 35, ~~characterized in that~~ wherein the serial connection is joined to at least another serial connection in a shingle-like configuration, whereby the back contact layer ~~(50)~~ lies on a front contact layer or ~~else~~ the front contact layer ~~(40)~~ lies on a back contact layer of the other serial connection.

37. (Currently Amended) The serial connection according to ~~one or both of claims~~ claim 35 ~~to 36, characterized in that~~ wherein the back contact layer ~~(50)~~ is joined by ~~means of~~ a conductive adhesive to a front contact layer of the other serial connection.

38. (Currently Amended) A photovoltaic module, characterized in that it comprises a serial connection according to ~~one or more of claims~~ claim 16 ~~to 37~~.

39. (New) The method according to claim 1, wherein the width of a separation line is in the order of magnitude of B = between 10 μm and 500 μm.

40. (New) The method according to claim 1, wherein the distance between two separation lines is in the order of magnitude of between 3 mm and 5 mm.

41. (New) The serial connection according to claim 16, wherein the width of a separation line is in the order of magnitude of B = between 10 μm and 500 μm.

42. (New) The serial connection according to claim 16, wherein the distance between two separation lines is in the order of magnitude of between 3 mm and 5 mm.

43. (New) The serial connection according to claim 16, wherein the width of the serial connection is in the order of magnitude of 5 cm to 30 cm, especially approximately 10 cm. (JPZ was not sure about this one)

44. ~~43.~~ (New) The serial connection according to claim 36, wherein the back contact layer is joined by a conductive adhesive to a front contact layer of the other serial connection.